

(No Model.)

2 Sheets—Sheet 1.

E. MEISE.

COMBINED SEWING MACHINE AND WORK HOLDING FRAME FOR STITCHING
THE INSOLES OF SHOES.

No. 343,669.

Patented June 15, 1886.

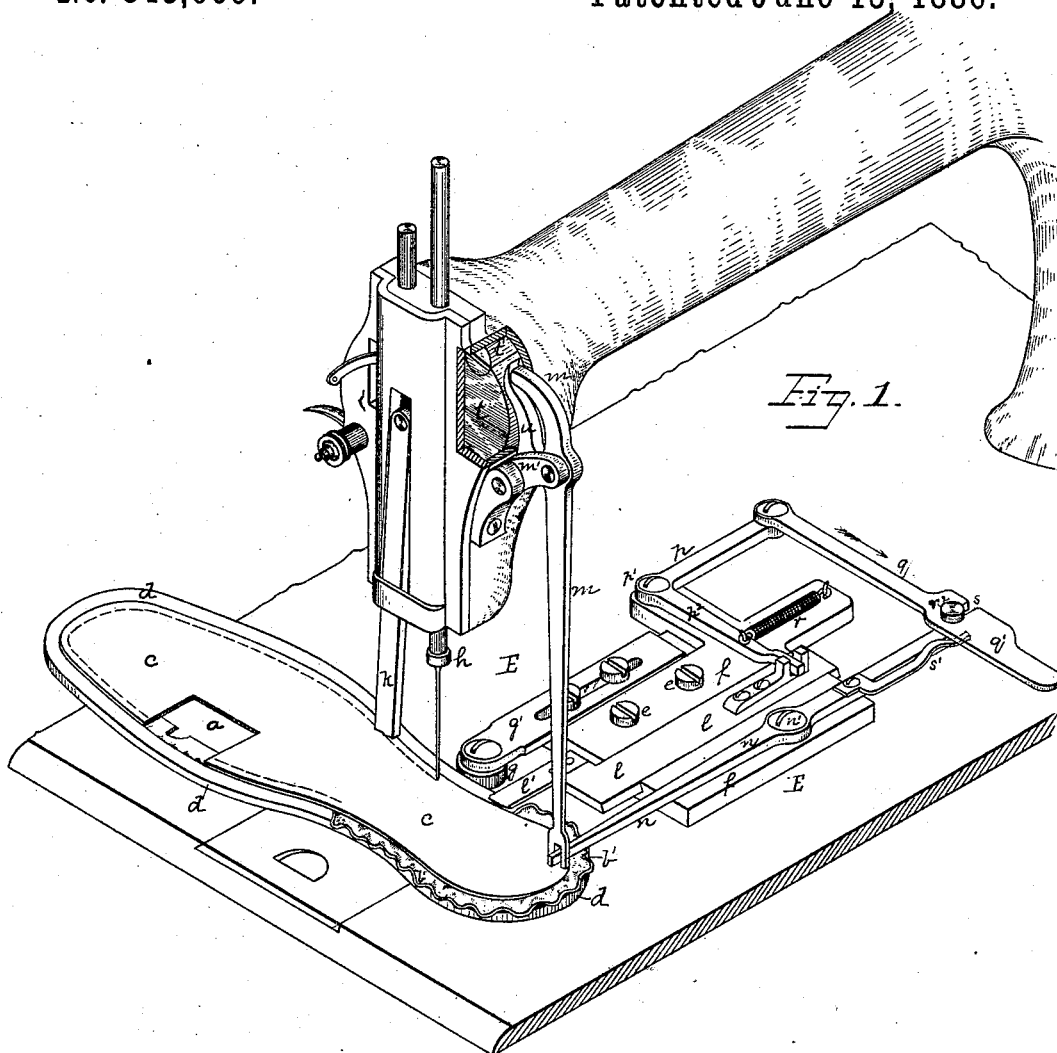


Fig. 1.

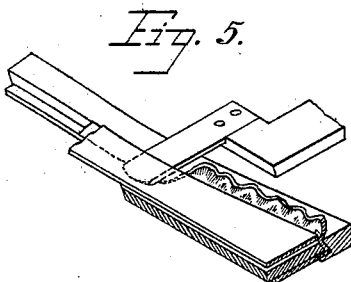


Fig. 5.

Addresses.

F. G. May
Missouri

Memor

Edward Weise
By James I. Ray
Attorney

E. MEISE.

COMBINED SEWING MACHINE AND WORK HOLDING FRAME FOR STITCHING
THE INSOLES OF SHOES.

No. 343,669.

Patented June 15, 1886.

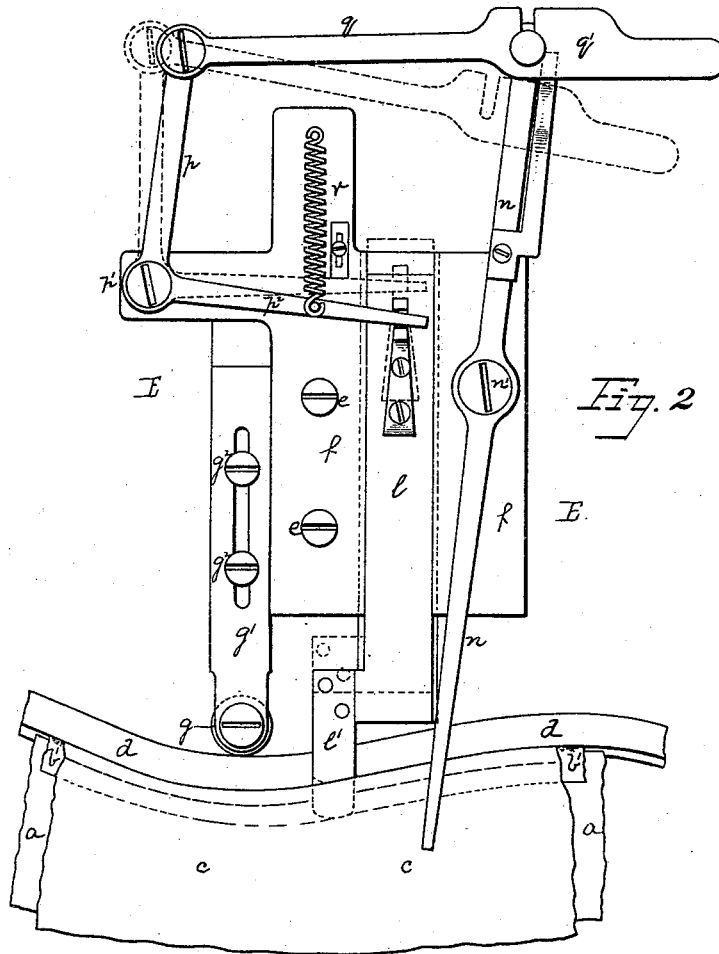


Fig. 2

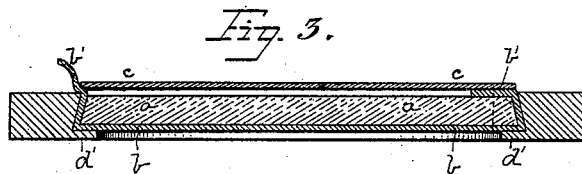


Fig. 3.

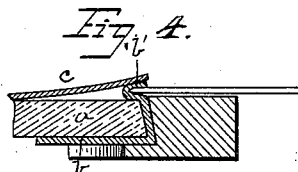


Fig. 4.

Witnesses.
J. G. Hays
J. C. Cooke

Inventor—
Eduard Meise
By James J. Hays
Attorney

UNITED STATES PATENT OFFICE.

EDUARD MEISE, OF PITTSBURG, PENNSYLVANIA.

COMBINED SEWING-MACHINE AND WORK-HOLDING FRAME FOR STITCHING THE INSOLES OF SHOES.

SPECIFICATION forming part of Letters Patent No. 343,669, dated June 15, 1886.

Application filed April 6, 1885. Serial No. 161,274. (No model.)

To all whom it may concern:

Be it known that I, EDUARD MEISE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in a Combined Sewing-Machine and Work-Holding Frame for Stitching the Insoles of Shoes; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to apparatus for covering the insoles of shoes—such as cork soles and similar removable inner soles—its object being to provide means for the cheap and rapid manufacture of the same. Heretofore the only method in general use for securing the covers on the cork or other bodies of these insoles has been to paste the overlapping edges of the canvas or canton-flannel cover to the body, and, after drying, sew this canvas cover and the oil-cloth cover to the body at the same time, the canvas covering one face of the body and overlapping onto the other face thereof, and the oil-cloth covering the other face of the body and hiding the overlapping edges of the canvas cover. The principal cost in this method of manufacture was the pasting, and this pasting also made the edges of the insole stiff and prevented its fitting so neatly in the shoe. On account of the flexible character of the materials, however, no means has heretofore been devised for sewing on the covers without stretching out of shape and wrinkling the canvas cover, and no commercially perfect goods have been so made.

In an application for patent made by me of even date herewith, filed April 6, 1885, Serial No. 161,275, I have described a method of manufacture by which the difficulties heretofore encountered in sewing on the covers have been overcome and the pasting entirely done away with, thus reducing the cost of manufacture and producing a more desirable insole. This method consists, generally, in stretching the canvas or flannel cover over one face of the body of the insole, and while so stretched turning the overlapping edge of said cover onto the opposite face and sewing it to the body. My present application refers to apparatus I have devised for practicing this method in connection with the ordi-

nary sewing-machine generally employed for the manufacture of these insoles.

It consists, essentially, in the combination of a bottomless or hollow frame corresponding in shape to the body of the insole, for supporting said body and stretching its cover over one face thereof, and stitch-forming mechanism operating within the frame to sew the cover to the body while it is supported in the frame.

It also consists in combining with this bottomless or hollow frame and stitch-forming mechanism an overlapper acting to turn over the overlapping edge of the canvas or flannel cover upon the opposite face of the body of the insole in position to be sewed thereto.

It also consists in imparting to this overlapper a reciprocating movement, to enable it to fold down the overlapping edge more perfectly.

It also consists in apparatus for imparting to the overlapper this reciprocating movement.

It also consists in certain details of construction, as hereinafter specifically set forth.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a perspective view illustrating my invention. Fig. 2 is a plan view thereof, and Fig. 3 is an enlarged cross-section of the frame supporting the body and canvas cover, and Figs. 4 and 5 are detail views.

Like letters of reference indicate like parts in each.

My invention is illustrated in connection with what is known as the "Singer Vibrating-Presser Sewing-Machine," this machine being found especially adapted for the manufacture of these insoles; but it may of course be employed with other sewing-machines, and it is not necessary to fully describe the feeding and stitch-forming mechanism, as this is well understood by the skilled mechanic, and varies according to the machine with which my apparatus is employed.

The body *a* of the insole is formed of cork, pasteboard, or similar material, and the bottom cover, *b*, of canvas or canton-flannel, while

the top cover, *c*, is generally formed of oil-cloth. The canvas cover *b* corresponds in shape to the body *a*, and is sufficiently large to form an overlapping edge, *b'*, which is turned over the edge of the body and overlaps on the opposite face thereof, and the top cover, *c*, corresponds substantially both in size and shape to the body. The frame *d*, within which the canvas cover is stretched over one face of the insole, is made of metal or gutta-percha, and corresponds in shape to the body of the insole, the inner edge thereof being substantially the same shape and size, and the body being wide and thick enough to make a stiff frame suitable for supporting the insole during sewing, the frame being formed bottomless or hollow, to permit the sewing of the insole and its cover when supported therein. Extending around the base of the inner face of the frame *d* is the lip *d'*, to support the insole and cover therein, the canvas cover *b* being placed over the frame *d*, and the body *a* being pressed into it, thus stretching the canvas cover over the lower face of the body, in which position the parts are ready for the sewing operation. The inner face of the frame is preferably made dovetailed, its upper edge corresponding in size to the body of the insole, and said face then receding slightly, and, as the body of the sole is slightly elastic, when it and the cover are pressed into the frame it is first compressed slightly and then expands into the dovetailed seat, and so stretches the cover more perfectly and holds it within the frame.

Secured to the bed-plate *E* of the sewing-machine by screws *e*, in the ordinary manner of securing attachments to the machine, is the plate *f*, having the guide-roller *g* secured to the plate *g'* and extending out at the forward end of the plate *f*, just back of the needle-bar *h* of the sewing-machine, the plate *g'* having a slot therein and being adjustable on the plate *f* by means of suitable set-screws, *g''*. This guide-roller *g* overcomes friction between the frame *d* and the apparatus, forming a guide therefor and being just back of the needle-bar the proper distance for the stitching of the insole, the frame *d* being pressed against this idle roller and guided thereby during the sewing of the insole. Secured to the plate *f* is the overlapper *l*, the lip or knife *l'* of which extends out over the frame *d* and acts to turn the overlapping edge *b'* of the canvas cover *b* over the body *a* and down upon the same in position to be caught by the presser-foot or other feeding mechanism, *k*, of the machine, so that the overlapping edge is turned or folded down upon the upper face of the body just before the sewing operation, and is held by the overlapper until caught by the feeding mechanism or until after the needle enters the material.

The overlapper may either be stationary during the greater part of the sewing operation; in this case extending out in the position shown in Fig. 2, or may be made reciprocating, in order to fold the material down in a direct

line from the edge of the insole, so that there is no stretching or wrinkling of said material except at the ends, where it is necessarily folded on account of surplus material, the latter form of overlapper being preferred by me.

When the overlapper is reciprocating, as shown, it moves in suitable guides on the plate *f* and its lip *l'* extends out in front of the needle-bar, and the reciprocating motion of the overlapper is obtained in any suitable manner from any part of the sewing-machine, that shown in the drawings being the form preferred by me, as the power is obtained without the addition of any cam apparatus to the machine or the cutting away of the body or frame of the machine.

In the ordinary construction of the machine before referred to the horizontal or power shaft is mounted in the horizontal arm of the machine and at its forward end has the cam-wheel *t*, which operates the needle-bar, and through a suitable lever, *u*, operates the presser-bar *k*, a friction-wheel, *t'*, extending beyond the face of the cam-wheel *t*, pressing on this lever *u*, and the said lever *u*, in order to give room for its movement, extends through a suitable slot in the side of the arm of the machine. Pivoted on said arm at *m'* is the lever *m*, the upper end of which presses against the back of the lever *u*, so that the movement of the lever *u* is imparted to the lever *m*. This lever *m* is connected at its lower end to the lever *n*, pivoted to the plate *f* at *n'*, the opposite end of the lever *n* being connected to the crank-lever *p*, which is pivoted to the plate *f* at *p'*, and at its opposite end is connected to the reciprocating overlapper *l*, the lever *m* moving the lever *n* and causing said lever *n* to draw upon the lever *p*, which, through its arm *p''*, presses forward the overlapper. Connected to the arm *p''* of the lever *p* and to the rear end of the plate *f* at *f''* is the spring *r*, and when the overlapper is pressed forward, as above described, said spring *r* is expanded, and as soon as the pressure on the upper end of the lever *m* is removed, this spring by its contraction draws back the overlapper to its normal position, (shown in Fig. 1,) at the same time through said lever mechanism causing the upper end of the lever *m* to follow the movement of the lever *u*, so as to be in position to be pressed out by said lever when it is desired to again push forward the overlapper.

I have described the lever *m* as pressing against the lever *u*, but it is evident that said lever could be connected to the lever *u* and form part thereof, or the lever *n* be operated by another cam-face on the cam-wheel *t*.

In order to facilitate the withdrawal of the overlapper, as is necessary in some cases, as referred to hereinafter, to provide suitable means for disconnecting the bar *q* from the end of the lever *n*, the preferred form of such mechanism being shown in the drawings, the lever *n* having the stud *n''* at the end thereof, while the bar *q* has the slot *s* on one side

thereof, within which said stud n^2 fits, thus connecting the bar to the lever, the bar being held in connection with the lever by the spring s' and holding the parts in the proper connection to operate the overlappers until the operator by drawing upon the extension or handle q' of the bar q draws it off said stud, pressing down the flat spring s' , when the spring r by drawing upon the arm p^2 of the lever p draws back the overlapper and holds it back until the bar is again connected to the lever n .

The operation of the apparatus is as follows: The operator places the canvas cover b over the frame d , and presses the body a down into the frame, so stretching said cover over the bottom face and bending it up over the edges of the body, the canvas cover and body being supported on the lip d' of the frame, so that it does not come in contact with the bed-plate of the machine to any great extent, and any pressure on the upper surface of the body will not be liable to press the said cover and body out of the frame. The frame thus forms a rigid support for the flexible cork or other body of the insole, so that it can be much more easily handled by the operator, and he can feed it to the machine without liability of disarranging the cover thereon. As it is generally desired to secure both the bottom or canvas cover and the top or oil-cloth cover to the body by one row of stitching, he generally places the oil-cloth cover c on top of the body, so as to coincide therewith, as shown, and he then raises the presser-bar k , and places the frame under the same, the frame resting against the guide-roller g , and the overlapper l entering over the frame, but under the oil-cloth cover, the overlapper, as the frame is pushed under it, turning down the overlapping edge b' of the canvas cover on the upper surface of the body a , and so acting to turn down the overlapping edge under the top cover, between it and the body. The machine is then started, and as the sewing proceeds the overlapper continues to turn over the edge b' and holds it down between the body and top cover until it is grasped by the feeding mechanism k , or until the needle enters the material, the needle passing first through the top cover, then through the overlapping edge b' of the bottom cover, thence through the body a , and thence through the bottom cover, and sewing all these parts together with one seam or line of stitching. As the operation continues, where the overlapper has the reciprocating movement, as above described, it is drawn back until the forward end of its lip l' passes off the body a , so that it extends only above the frame d , and then is pushed forward in a direct line to the edge of the body, and so acts to turn down the overlapping edge in a direct line from the edge thereof, so that there is no liability of its stretching or wrinkling the material by drawing it diagonally from the edge of the body, the reciprocating overlapper thus acting to press the overlapping edge down flat upon the body, except at the ends of the insole,

where the material of the overlapping edge is necessarily folded upon itself on account of the surplus of material around the convex contour of the insole. This operation continues until the sewing is almost completed, but as the lip l' extends under the top cover when it approaches the point where the stitching was commenced, it is evident that it must be withdrawn to permit the stitching of the cover around its entire edge, as the lip would strike against the stitching where it was commenced. To withdraw the overlapper, the operator, by means of his fingers, draws on the extension q' of the bar q until it is disconnected from the lever n , when the overlapper will be drawn back by the spring r , and the stitching can be continued until finished around the entire edge of the insole, the insole being thus finished completely.

If desired, my improved apparatus may be employed for first stitching the canvas cover to the body, and the top cover be secured thereto by a separate row of stitching; but this is not necessary, and would simply increase the expense of manufacture. The operation is rapid, and the operator's only care is to hold the top cover in position with the body of the insole. The stretching of the canvas cover on the body requires but little time, and consequently the cost of sewing is not increased over that of the old method of manufacture, the entire cost of pasting being saved. As all pasting is done away with, the insole is flexible and readily conforms to the body of the shoe, and the article produced is more desirable than the insoles made by the previous methods of manufacture.

No claim is made herein for the frame for supporting the insole, except when employed in combination with the stitch-forming apparatus, the same forming the subject-matter of a separate application for patent, filed November 14, 1885, Serial No. 182,807.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a bottomless or hollow frame corresponding in shape to the body of the insole, for supporting said body, and stretching its cover over one face thereof, and stitch-forming mechanism operating within the frame to sew the cover to the body while it is supported therein, substantially as and for the purposes set forth.

2. The combination of a bottomless or hollow frame corresponding in shape to the body of the insole, for supporting said body and its cover, an overlapper extending over the frame and acting to turn the overlapping edge of the cover down onto said body of the insole, and stitch-forming mechanism for sewing the cover to the body, substantially as set forth.

3. The combination of a frame corresponding in shape to the body of the insole, for supporting said body and its cover, a reciprocating overlapper extending over the frame and acting to turn the overlapping edge of the cover down onto said body, and stitch-forming

mechanism for sewing the cover to the body, substantially as set forth.

4. The combination of a frame corresponding in shape to the body of the insole, for supporting said body and its cover, an over-
15 lap- per extending over the frame and acting to turn the overlapping edges of the cover down onto the body, stitch-forming mechanism, for sewing the cover to the body, and means for
20 withdrawing the overlapper, substantially as set forth.

5. The combination of a bottomless or hollow frame corresponding in shape to the body of the insole, for supporting said body and its
15 cover, a roller guiding the movement of the frame, an overlapper extending over the frame and acting to turn the overlapping edge of the cover down onto the body, and stitch-forming mechanism for sewing the cover to the body,
20 substantially as set forth.

6. In sewing-machines, the combination of stitch-forming mechanism, the cam-wheel *t*, the overlapper *l*, and lever and spring mechanism, substantially such as described, between

said cam-wheel and overlapper, for imparting 25 a reciprocating motion to the overlapper, substantially as and for the purposes set forth.

7. In sewing-machines, the combination, with stitch-forming mechanism and the cam-wheel *t*, of the attachment-plate *f*, secured to 30 the bed-plate, the reciprocating overlapper *l*, levers *n p*, pivoted thereon, connecting-bar *g*, spring-arm *v*, and lever *m*, pivoted to the machine-arm, substantially as and for the purposes set forth. 35

8. In sewing-machines, the combination, with stitch-forming mechanism, of the attachment-plate *f*, reciprocating overlapper *l*, levers *n* and *p*, connecting-bar *g*, having a removable connection with the lever *n*, and 40 spring *v*, substantially as and for the purposes set forth.

In testimony whereof I, the said EDUARD MEISE, have hereunto set my hand.

EDUARD MEISE.

Witnesses:

JAMES I. KAY,
J. N. COOKE.